

TWELVE NEW SPECIES OF AUSTRALIAN BUPRESTIDAE (COLEOPTERA) AND NEW SYNONYMY

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Summary

BARKER, S. (2004) Twelve new species of Australian Buprestidae (Coleoptera) and new synonymy. *Trans. R. Soc. S. Aust.* 128(2), 195-204, 30 November, 2004.

Eleven new species of *Castiarina* are described namely: *C. bilyi*, *C. hugejiana*, *C. coalstounensis*, *C. chlorota*, *C. darkinensis*, *C. denmanensis*, *C. gilberti*, *C. kitchini*, *C. markgoldingi*, *C. moxoni*, *C. pallida* and one new species of *Astraeus* namely *A. kitchini*. *Castiarina suttoni* (Carter, 1932) is resurrected from synonymy with *Castiarina dequeti* (Carter, 1927).

KEY WORDS: Coleoptera, Buprestidae, New species, *Castiarina*, *Astraeus*.

Materials and Methods

Specimens examined were borrowed from or are deposited in the following institutions and collections:

- AMSA - Australian Museum, Sydney.
- ANIC - Australian National Insect Collection, Canberra.
- ASSH - A. Sundholm, Sydney.
- DKQA - D. Kitchin, Toowoomba.
- MHSA - M. Hanlon, Sydney.
- MPWA - M. Powell, Melville and M. Golding, Beverly.
- PMCE - Prague Museum, Czechoslovakia.
- QMBA - Queensland Museum, Brisbane.
- SAMA - South Australian Museum, Adelaide.
- WAMA - Western Australian Museum, Perth.

Male genitalia were prepared and illustrated by the method described in Barker (1987). Habitus illustrations were prepared by photographing each holotype, projecting the image onto copy paper at 6 times natural size, then drawing around the image in pencil. The paper was folded along the mid-line of the image, placed over a light box and the sides equalised. The resultant outline was traced onto pencil board and the details drawn in with pencil. Smudge sticks and a plastic eraser were used for fine shading. The completed drawings were sealed with mat fixative. Finally they were scanned into a computer and the images manipulated using Photoshop. Measurements given are total body length and width of the holotype, followed by the range of these measurements for all males and females. Codens used in the text for museum and private collections follow the four letter system of Watt (1979) and Arnett *et al.* (1993).

Introduction

Largely because of the enthusiasm of a number of collectors, the Australian buprestids are now much better known than they were twenty five years ago. For the last thirty four years I have been working towards a revision of *Castiarina* (Gory & LaPorte), the species of which are some of the most difficult to identify. Again, before that task is completed more species have been brought to my attention and these are described below, together with a new species of *Astraeus* (Gory & LaPorte) (s.s.). *A. blackdownensis* Barker, 1977 was described from a unique female specimen. A series of both sexes was collected at Blackdown Tableland, Queensland on 25.x.2001 on *Allocasuarina inophloia* (F. Muell. & F. M. Bailey) L. A. S. Johnson by myself and M. Powell. Specimens have been deposited in the QMBA and SAMA collections.

Resurrection of a *Castiarina* species

In an earlier paper on the genus *Castiarina* (Barker 1980) I synonymised *Castiarina suttoni* (Carter, 1932) and *Castiarina palagera* (Carter, 1937) with *Castiarina dequeti* (Carter, 1927). Recently I have re-examined all of the holotypes: ♂ holotype, *C. dequeti*, Armidale, NSW, C. Dequet, AMSA K58167; ♀ holotype, *C. suttoni*, E. Sutton, Fletcher, Queensland, AMSA K67341; ♂ holotype, *C. palagera*, Cessnock, NSW, W. Duboulay, AMSA K104458. On the basis of the structure of male genitalia and external morphology I conclude that *C. palagera* is a synonym of *C. suttoni* which is a separate species from *C. dequeti*.

Castiarina bilyi sp. nov.
(Figs 1i, 2b)

Holotype

♂, Hyden, W.A., 25.x.2001, S. Bilý, WAMA.

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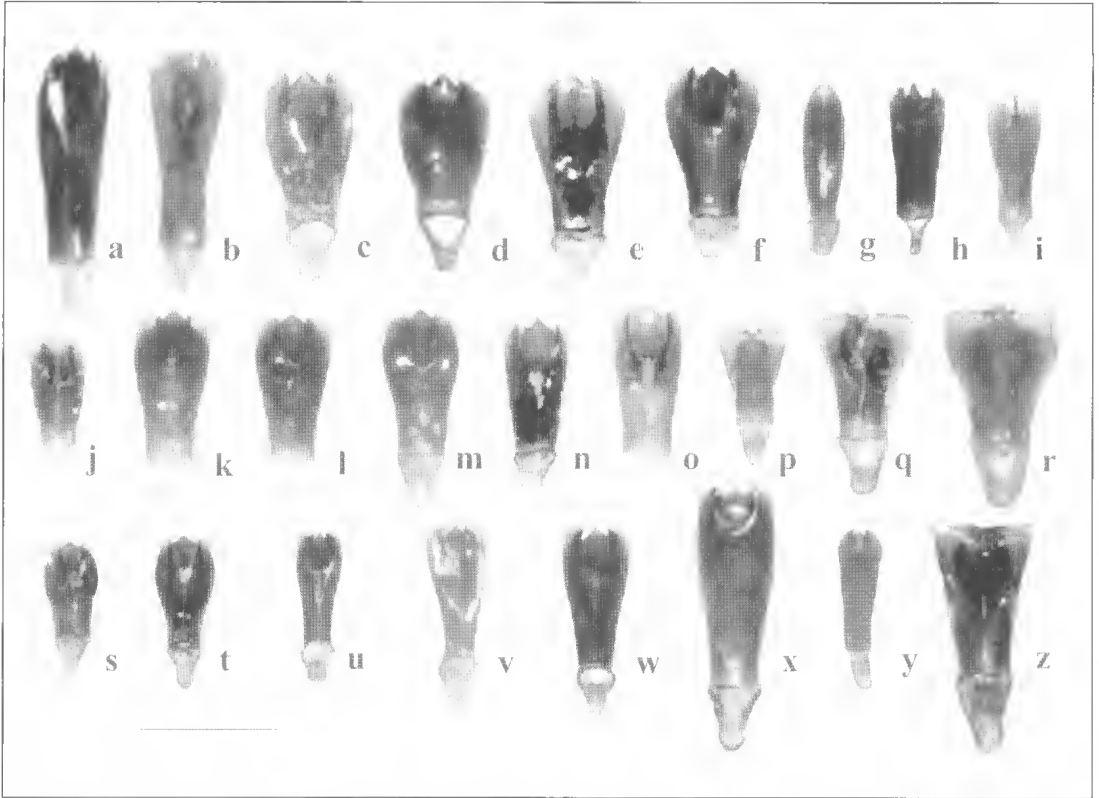


Fig 1. Male genitalia of the following species: a. *Castiarina simulata perplexa* (Hope) b. *C. darkinensis* sp. nov. c. *C. moxoni* sp. nov. d. *C. goudiana* (Barker) e. *C. pallida* sp. nov. f. *C. subnotata* (Carter) g. *Astraeus kitchini* sp. nov. h. *Castiarina kiaiae* (Barker) i. *C. bilyi* sp. nov. j. *C. markgoldingi* sp. nov. k. *C. erasma* (Carter) l. *C. gardnerae* (Barker) m. *C. mustelamajor* (Thomson) n. *C. haswelli* (Carter) o. *C. denmanensis* sp. nov. p. *C. coalstounensis* sp. nov. q. *C. gilberti* sp. nov. r. *C. carinata* (Macleay) s. *C. chlorota* sp. nov. t. *C. balthasari* (Obenberger) u. *C. hugejiana* sp. nov. v. *C. parallela* (White) w. *C. vittata* (Saunders) x. *C. xanthopilosa* (Hope) y. *C. kitchini* sp. nov. z. *C. producta* (Saunders). Scale bar = 2 mm.

Paratypes

WA: ♂, Yellowdine, 16.x.2001, S. Bílý, PMCE; ♂, Queen Victoria Rock, Coolgardie, 1.xi.2001, S. Bílý, PMCE; ♂, same data as holotype, SAMA.

Size: Holotype, 8.8 x 3.2 mm. Males, 7.6 – 9.6 x 2.4 – 3.4 mm. Females, unknown.

Colour: Head, antennae and pronotum bronze with blue and purple reflections. Scutellum black with purple reflections. Elytra yellow with the following black markings with blue reflections: narrow band along basal margin, pre-medial fascia with ends projecting anteriorly meeting basal margin and posteriorly reaching lateral margin; post-medial meeting lateral margin; pre-apical spade-shaped mark, all marks connected along suture. Ventral surface and legs bronze. Setae silver.

Shape & sculpture: Elongate. Head punctured with

median sulcus. Antennae, antennomeres: 1-3 obconic; 4-11 triangular. Scutellum scutiform, without punctures, medially excavated. Pronotum punctured, anterior margin straight, basal margin bisinuate, median longitudinal impressed line ending in small basal fovea, laterally rounded out from base, rounded and narrowed to apex. Elytra punctate-striate, intervals faintly wrinkled, laterally angled outwards from base, rounded at humeral callus more or less parallel-sided until rounded post-medially, rounded and narrowed to bispinose apex, both spines sharp, margin deeply indented between, apical margin sub-serrate. Ventral surface densely setose. S₇ truncate in males.

Aedeagus: Parameres elongate, barely expanded towards apex which is rounded; penis in form of a thin pointed rod (Fig. 1i).

Remarks

The colour and pattern of this species most resemble *Castiarina kiatae* (Barker, 1980), but male genitalia are quite distinct (Fig. 1h); the apex of the penis is pointed in *C. kiatae* and spine-like in *C. bilyi*. *C. kiatae* is a broader species.

Etymology

The species is named after my friend Dr S. Bily, its collector.

***Castiarina bugejiana* sp. nov.**
(Figs 1u, 2i)

Holotype

♂, 48 km N Bourke, N.S.W., 9.ix.1984, on *Micromyrtus hexamera* flowers, A. Sundholm & J. Bugeja, SAMA 1 21 554.

Allotype

♀, 48 km N Bourke, N.S.W., 24.viii.84, on *Micromyrtus hexamera* flowers, A. Sundholm & J. Bugeja, SAMA 1 21 555.

Paratypes

NSW: ♂, same data as holotype, SAMA; 2 ♀♀, 5.ix.1986, 48 km N Bourke, on *Thryptomene hexamera*, A. Sundholm & J. Bugeja, ASSH; 7 ♂♂, ♀, Glengceera Station: 38 km N Bourke, NSW; 29° 44' 37.1" S. 145° 57' 9.9" E. Elev. 129 m, 6.ix.2003, on *Thryptomene hexamera* flowers, A. Seott, A. Sundholm, ASSH; 3 ♂♂, ♀, Ledknapper Crossing Road, 43.2 km N Bourke, NSW, 29° 45' 9.2" S. 146° 0' 32" E. Elev. 103 m., 6.ix.2003, on *Thryptomene hexamera* flowers, A. Seott, A. Sundholm, ASSH.

Size: Holotype, 9.6 x 3.2 mm. Males, 9.1 – 11.4 x 2.8 – 3.8 mm. Females, 10.4 – 11.8 x 3.2 – 4.0 mm.

Colour: Head, antennae, pronotum dull bronze. Scutellum bright copper-bronze. Elytra black with faint purple reflections and the following yellow spots on each elytron: four large in middle in a row from base to apex; two elongate along margin, the first beneath humeral callus, the second behind it. Ventral surface and legs bronze. Setae silver.

Shape and sculpture: Elongate. Head punctured, faint median sulcus. Antennae, antennomeres: 1-3 obconic; 4-11 triangular. Pronotum punctured, impressed medial line from base to anterior margin, anterior margin projecting medially, basal margin straight, lateral margin rounded from base to apex but not bulbous. Scutellum scutiform, without punctures, medially excavated. Elytra punctate-striate, 3rd interval from suture much larger than the rest, lateral intervals rough, inner smooth, laterally angled outwards from base, more or less parallel-

sided until rounded post-medially and narrowed to bispinose apex, both spines minute, margin indented between. Ventral surface and femora covered in flat feathery setae. S₇ truncate in males, rounded in females.

Aedeagus: Parameres slightly angled outwards from basal piece, broadened at middle and more or less parallel-sided until rounded at the apex, penis sharp (Fig. 1u). Proetiger in both sexes rounded and without notching.

Remarks

This species belongs in the *parallela* species group. Three other group member species occurring only to the east of the Nullarbor Plain are *Castiarina parallela* (White, 1859) (Fig. 1v), *Castiarina vittata* (Saunders, 1868) (Fig. 1w) and *Castiarina xanthopilosa* (Hope, 1847) (Fig. 1x). All have rounded proetigers unlike the species found in W.A. (Barker, 1996). *C. bugejiana* is a very distinctive species having a dark background to the elytral pattern. *C. vittata* has two elongate vittae on the elytra and no spots. The other two species both have the same spotted pattern but the background colour in both is a dark red-brown.

Etymology

Named after my friend J. Bugeja, Sydney.

***Castiarina chlorota* sp. nov.**
(Figs 1s, 2c)

Holotype

♂, Northampton, W.A., 27.viii.1971, K. & E. Carnaby, ANIC.

Allotype

♀, same data as holotype, ANIC.

Paratypes

WA: 14 ♂♂ & ♀, Mingenew, 3.ix.1958, Le Souef, ANIC; 2 ♂♂ Mingenew, 28.viii.70, K. Carnaby, Brooks bequest, ANIC; 4 ♂♂ & ♀, Mingenew, 28.viii.70, K. & E. Carnaby, ANIC; 11 ♂♂, 7 ♀♀, Mingenew, 29.viii.70, ANIC; ♂ & 3 ♀♀, 8/70, K. C., Brooks bequest, ANIC; ♂ & ♀, 28.ix.1970, K. & E. Carnaby, ANIC; 3 ♂♂ & 2 ♀♀, Mingenew, 29.ix.1970, K. & E. Carnaby, SAMA; 22 ♂♂ & 22 ♀♀, same data as holotype, ANIC; 3 ♂♂ & ♀, 7.ix.1971, Mingenew, K. & E. Carnaby, ANIC; 2 ♂♂ & 2 ♀♀, Geraldton, 3.viii.1973, K. & E. Carnaby, ANIC; ♂ & 4 ♀♀, Mingenew, 22.viii.1974, K. & E. Carnaby, ANIC; ♂, 23 km E by N Dongara, 30.ix.1981, I. D. Naumann & J. C. Cardale, ANIC; ♀, H. W. Brown, Moore Riv., ANIC; ♀, no data, ANIC; ♂, 80 km S Northampton,

20.viii.78, M. Powell, MPWA; ♂, 30 km S Northampton, 26.viii.1979, on *Scholtzia* flowers, T. M. S. Hanlon, MHSA; ♂, 18 km S Three Springs, 20.xi.91, D. Knowles, MPWA; ♂, 4.x.1996, K. Kershaw, MPWA.

Size: Holotype, 7.8 x 2.4 mm. Males, 6.9–9.6 x 2.2–3.0 mm. Females, 7.6–11.2 x 2.4–4.0 mm.

Colour: Head, antennae, pronotum, scutellum green. Elytra dark red-brown with the following yellow markings: three circular, medial spots in a row on each clytron; a small round spot on margin at humeral callus and a similar medial one, an elongate preapical mark also on margin. Ventral surface and legs green. Setae silver.

Shape and sculpture: Head closely punctured, median sulcus, short muzzle. Antennae antennomeres: 1-3 obconic; 4-11 triangular. Pronotum closely punctured, narrow basal fovea extending forwards to middle as glabrous line, then to margin as impressed line, basal fovea on each side closer to margin than middle; apical margin projecting medially, basal margin barely bisinuate; laterally parallel-sided at base, angled outwards and rounded to widest medially, rounded to apex. Scutellum scutiform, glabrous, flat. Elytra punctate-striate, intervals convex, punctured and wrinkled, more so laterally than medially; laterally angled out from base, rounded at humeral callus, concave, rounded post-medially, narrowed to bispinose apex; margin rounded and indented between spines, apices diverging. Ventral surface with shallow punctures, edges of abdominal segments glabrous; otherwise setose, setae flat, feathery. S₇ truncate in both sexes. Aedeagus: Angled outwards from basal piece, rounded to widest post-medially then converging towards apex. Penis broad with small blunt apex (Fig. 1s).

Remarks

C. chlorota belongs in the *parallela* species group and is closest to *C. balthasari* (Obenberger, 1928). They are easily separated because the aedeagi differ (Fig. 1t) and *C. chlorota* has a green head, pronotum and ventral surface, all brownish in the other species.

Etymology

The species is named for its colour: *chloros* Gr., green.

Castiarina coalstounensis sp. nov.
(Fig. 1p, 2j)

Holotype

♂, Coalstoun Lakes, Qld, 20.xi.01, D. Kitchin, SAM I 21 569.

Allotype

♀, same data as holotype, SAM I 21 570.

Paratypes

Qld: 4 ♂♂, same data as holotype, SAMA, DKQA.

Size: Holotype, 8.8 x 3.2 mm. Males, 8.8–9.4 x 3.2–3.3 mm. Females, 8.2–11.2 x 3.0–4.4 mm.

Colour: Head, antennae green-bronze. Pronotum green-bronze with dark blue medial area. Scutellum green-bronze or blue. Elytra with yellow background and the following black markings: narrow basal mark, pre-medial fascia reaching lateral margins, post medial fascia reaching lateral margins, pre-apical spade-shaped mark extended to cover spines, all marks connected along suture, apical margin red. Ventral surface blue and/or bronze-green. Legs blue. Setae silver.

Shape & sculpture: Head closely punctured with a deep median sulcus. Antennae: antennomeres 1-4 obconic; 5-11 toothed. Pronotum deeply punctured, deep median sulcus, anterior margin straight, basal margin bisinuate, laterally rounded from base to apex, widest before middle. Scutellum scutellate, punctured. Elytra punctate-striate, 3rd interval from suture raised, inner three intervals not as heavily punctured as all of the rest, laterally angled out from base, rounded at humeral callus, concave then rounded after middle to bispinose apex, both spines short, margin rounded and indented between. Ventral surface punctured and setose, setae moderately long and dense. S₇ truncate in both sexes. Legs 2-3: male tarsomeres 1-3 with single median spine replacing pulvilli.

Aedeagus: Wedge-shaped (Fig. 1p).

Remarks

This species is a member of the *sexplagiata* species group with typical male genitalia and modified tarsomeres on legs 2 & 3, closest to *Castiarina gilberti* sp. nov., but with different male genitalia (Fig. 1p).

Etymology

The species is named after the type locality, Coalstoun Lakes, Queensland.

Castiarina darkinensis sp. nov.
(Figs 1b, 2c)

Holotype

♂, 6 km W Little Darkin Swamp, W.A., 21.xii.00/3.i.01, to red bucket, Knowles & Powell, SAMA I 21 556.

Allotype

♀, same data as holotype, SAMA I 21 557.

Paratypes

WA: ♂ & 2 ♀ ♀, same data as holotype, MPWA.

Size: Holotype, 11.6 x 4.5 mm. Males, 11.2 – 11.6 x 4.4 – 4.5 mm. Females, 11.3 – 13.0 x 4.4 – 5.1 mm. Colour: Head, antennae and pronotum bronze. Scutellum dark blue with or without bronze reflections. Elytra with yellow background, faint red margin and the following black markings: basal margin; pre-medial fascia with ends projecting anteriorly and posteriorly and meeting margin; post-medial fascia meeting margin; pre-apical anchor-shaped mark, marks all connected along suture. Ventral surface and legs bronze.

Shape & sculpture: Head punctured, without median sulcus. Antennae, antennomeres: 1-3 obovate; 4-11 triangular. Pronotum heavily punctured, faint median impressed line from base to apex, apical margin projecting medially, basal margin faintly bisinuate, lateral margin concave at base then rounded outwards all the way to apical margin, bulbous. Scutellum scutiform, without punctures, medially excavated. Elytra punctate-striate, intervals punctured more so laterally than medially, laterally angled outwards from base, rounded at humeral callus faintly concave until rounded post-medially and narrowed to bispinose apex, sutural spine heavier than marginal spine, rounded between, apices diverging. Ventral surface heavily punctured, except margins of abdominal sclerites glabrous, densely setose. S₇ truncate in males, rounded in females.

Aedeagus: Elongate, parameres diverging slightly from base, abruptly rounded apically, penis sharp (Fig. 1b).

Remarks

This species is a member of the *simulata* species group. The colouration and pattern of the elytra is similar to that of *Castiarina simulata perplexa* (Hope, 1846) which also has a red margin. They can be distinguished by the anchor-shaped apical mark on the elytra, spade-shaped in *C. simulata perplexa* and the differences in male genitalia (Fig. 1a). All of the specimens were captured by using a colour lure.

Etymology

This species is named after the type locality, Darkin, W.A.

Castiarina denmanensis sp. nov.

(Figs 1o, 2h)

Holotype

♂, Mt Denman summit, N.S.W., S32.23.1 E150.39.27, 11/12.xii.200, on *Leptospermum* sp.

flowers, A. Sundholm, R. Chin, K. Tazoe, SAMA 1 21 558.

Allotype

♀, same data as holotype, SAMA 1 21 559.

Paratypes

NSW: 2 ♂ ♂, East Minto, 13.xii.66, G. Williams, ANIC; 4 ♂ ♂ & ♀, same data as holotype, ASSH; 5 ♂ ♂, Wolgan State Forest, 33° 15' 17" S, 150° 6' 16" E Elev 1051 m., 27.xii.2002, on flowers of *Leptospermum*, A. Scott, ASSH.

Size: Holotype, 12.4 x 4.6 mm. Males, 11.6 – 13.4 x 4.4 – 5.0 mm. Females, 13.7 – 14.2 x 3.8 – 4.9 mm. Colour: Head bronze with or without purple reflections. Antennae black, antennomeres 1-2 with green reflections. Pronotum bronze with or without purple reflections around the margin. Scutellum bronze with coppery reflections. Elytra basal colour yellow with red margins and the following black markings: band along basal margin; pre-medial fascia not reaching margin, ends expanded broadly forwards to meet anterior margin and narrowly posteriorly to meet margin enclosing a red spot on margin beneath humeral callus; broad post-medial fascia reaching margin; spade-shaped pre-apical mark, all marks connected along suture. Ventral surface: male coppery sternal segments, red-brown abdominal segments; female all coppery. Legs: dorsal surface greenish; ventral surface purple. Setae silver.

Shape and sculpture: Head punctured, shallow median sulcus. Antennae, antennomeres: 1-3 obovate; 4-11 triangular. Pronotum punctured, variable short median glabrous line near base, anterior margin projecting medially, basal margin bisinuate, laterally parallel-sided from base until middle then rounded to anterior margin. Scutellum scutiform, with few punctures. Elytra punctate-striate, intervals punctured, more so laterally than medially, laterally angled outwards from base, rounded at humeral callus then more or less parallel-sided until post-medially rounded and narrowed to bispinose apex, both spines small and sharp, margin rounded between. Ventral surface punctured, setae flattened and feathery. S₇ truncate in males, rounded in females.

Aedeagus: Parameres expanded apically, penis broad and pointed (Fig. 1o).

Remarks

This species most resembles *Castiarina haswelli* (Carter, 1916), an eastern Australian species. However, there are differences in colour, size and male genitalia. In *C. haswelli* the ventral surface in

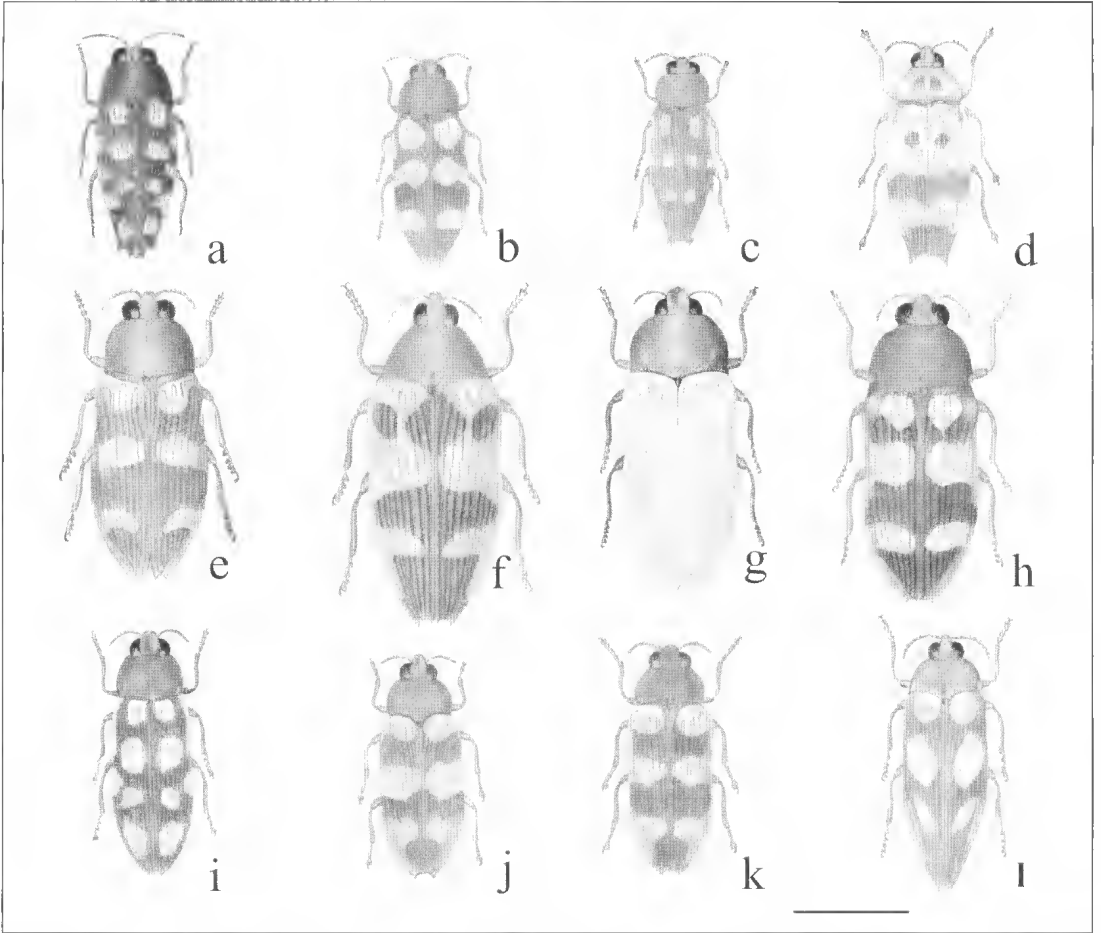


Fig 2. Habitus illustrations of the following species: a. *Astraeus kitchini* sp. nov. b. *Castiarina bilyi* sp. nov. c. *C. chlorota* sp. nov. d. *C. markgoldingi* sp. nov. e. *C. darkinensis* sp. nov. f. *C. moxoni* sp. nov. g. *C. pallida* sp. nov. h. *C. denmanensis* sp. nov. i. *C. bugejiana* sp. nov. j. *C. coalstoumensis* sp. nov. k. *C. gilberti* sp. nov. l. *C. kitchini* sp. nov. Scale bar = 5 mm.

females is blue and in males red; it is a smaller species and male genitalia are different (Fig. 1n). The two specimens from East Minto have a paler elytral pattern than those from Mt Denman.

Etymology

The species is named after the type locality, Mt Denman, NSW.

Castiarina gilberti sp. nov. (Figs 1q, 2k)

Holotype

♂, Blackdown Tableland, Expedition Ra., Qld, 9.xi.1981, S. Barker, P. Kempster, H. Vanderwoude, QMBA.

Allotype

♀, same data as holotype, SAMA I 21 561.

Paratypes

Qld: 4 ♂♂, same data as holotype, SAMA, QMBA; 2 ♂♂, Stony ck Falls, Blackdown Tblnd, on *Melaleuca*, 25.x.2000, S. Barker, M. Powell, QMBA; ♂ & ♀, Blackdown Tableland, 24.xi.1999, on *Leptospermum* & *Eucalyptus*, T.M.S. Hanlon, MHSA.

Size: Holotype, 10.8 x 4.0 mm. Males, 9.3 – 11.0 mm x 3.5 – 4.0 mm. Females, 10.6 – 11.0 x 4.0 – 4.5 mm.

Colour: Head with blue apex, yellow green with violet reflections at base. Antennae blue. Pronotum

laterally blue, medially black with bronze reflections. Scutellum blue. Elytra yellow with red lateral margin and the following black markings with blue reflections: narrow basal margin, pre-medial fascia not reaching margin, ends expanded anteriorly; post-medial fascia reaching margin; mark covering apex and spines, all marks connected along suture. Ventral surface blue-green. Legs blue. Setae silver.

Shape and sculpture: Head closely punctured, broad median sulcus, short muzzle. Antennomeres 1-4 obconic, 5-11 toothed. Pronotum densely punctured, basal fovea extending forwards to apical margin as impressed line, basal notches on each side closer to margin than middle; apical margin straight, basal margin bisinuate; laterally angled outwards from base, rounded at widest part pre-medially, rounded and narrowed to apex. Scutellum scutiform, punctured, excavate. Elytra punctate-striate, 3rd interval from suture raised, intervals convex, heavily punctured; laterally angled out from base, rounded at humeral callus, concave, rounded post-medially and narrowed to bispinose apex; both spines small, margin rounded and indented between spines, apices hardly diverging. Ventral surface with shallow punctures, edges of abdominal segments glabrous, setose, setae short. S₇ truncate in both sexes. Males: legs 2 and 3 with pulvilli absent on tarsomeres 1-3, replaced by median spine.

Aedeagus: Wedge-shaped (Fig. 1q).

Remarks

C. gilberti sp. nov. is a typical member of the *sexplagiata* species group, the males of which have similar wedge-shaped male genitalia and reduced pulvilli on legs 2 and 3. The specimens were collected on the flowers of *Melaleuca lineariifolia* Smith and *Baeckea* sp. This species is closest to *Castiarina carinata* (Macleay, 1863), in which the elytra has darker brown background colour, no red lateral markings and male genitalia differ (Fig. 1r).

Etymology

The name honours the late John Gilbert, naturalist with the Leichhardt Expedition to Port Essington, which passed through the locality, Expedition Range, in 1842.

Castiarina kitchini sp. nov.

(Figs 1y, 2l)

Holotype

♂, Acacia Plateau, NSW, 26.i.2000, D. Kitchin, SAMA I 21 562.

Allotype

♀, same data as holotype, SAMA I 21 563.

Paratypes

NSW: 2 ♂♂, 2 ♀♀, Acacia Plateau, NSW, 20.i.2000, D. Kitchin, DKQA; 3 ♂♂, same data as holotype, DKQA. QLD: ♀, National Park, Macpherson Rge, i.28, H. J. Carter, ANIC.

Size: Holotype, 10.6 x 3.4 mm. Males, 10.6 – 11.2 x 3.2 – 3.8 mm. Females, 11.2 – 12.2 x 3.6 – 4.0 mm.

Colour: Head, green; antennae blue-green. Pronotum, scutellum green with yellow reflections. Elytra with yellow background and with the following black markings: pre-medial fascia with ends expanded anteriorly, but not reaching anterior margin, and posteriorly; post-medial fascia with ends expanded anteriorly meeting pre-medial fascia along the lateral margin; an arrow-shaped pre-apical mark covering apical spines, all marks connected along suture forming three yellow spots on each elytron, anterior and posterior with red lateral margin. Ventral surface green with yellow reflections. Legs royal blue, tarsi blue.

Shape and sculpture: Head shallowly punctured with prominent median sulcus. Antennomeres 1-3 obconic; 4-11 triangular. Pronotum shallowly punctured, with a faint median sulcus in form of a glabrous impunctate line from middle to near base ending in a deep basal fovea; anterior margin straight, basal margin bisinuate; laterally rounded out from base, rounded and tapered to apex. Scutellum scutiform, medially indented with a few punctures. Elytra punctate-striate, laterally angled out from base, rounded at humeral callus, then slightly concave until rounded post-medially and tapered to bispinose apex, marginal spine elongate, wide at base but pointed. sutural spine represented by notch. Ventral surface shallowly punctured, with long setae. S₇ rounded in both sexes.

Aedeagus: Elongate, expanded apically, penis sharp (Fig. 1y).

Remarks

This species is a member of the *producta* mimicry group and could be confused with that species but can be separated by having: antennomeres 1-4 obconic; a more prominent median sulcus and fovea on the pronotum which is rounded from base to apex; finer apical spines on the elytra; elongate aedeagus, not wedge-shaped as in *Castiarina producta* (Saunders, 1868) (Fig. 1z).

Etymology

The species is named after the collector, D. Kitchin, Toowoomba.

Castiarina markgoldingi sp. nov.

(Figs 1j, 2d)

Holotype

♂, km N Galena Bridge, W.A., on *Dicrastylis* sp., 14.xii.1996, Golding and Powell, SAMA I 21 564.

Allotype

♀, same data as holotype, SAMA I 21 565.

Paratypes

WA: ♀, 65 km N Galena Bridge, on *Dicrastylis*, 18.xii.93, MG & MP, MPWA.; ♀, 64 km N Galena Bridge, on *Dicrastylis* sp., 12.xii.1996, Golding & Powell, MPWA; ♀, 65 km N Galena Bridge, on *Dicrastylis* sp., 12.xii.1996, Golding & Powell, MPWA.

Size: Holotype, 9.1 x 3.4 mm. Females, 9.0 – 10.5 x 3.3 – 3.9 mm.

Colour: Head black with blue reflections. Antennae blue. Pronotum orange-brown with medial circular black spot, divided down middle and touching basal margin. Scutellum black. Elytra orange-brown with the following black markings: narrow basal margin projecting over humeral callus on each side; pre-medial spot on each side; post-medial fascia touching margin and suture, projecting anteriorly and posteriorly in middle of each side; mark covering apex and spines. Ventral surface: prosternum orange-brown; meso-sternum and metasternum dark blue; abdomen testaceous. Legs dark blue. Setae silver.

Shape and sculpture: Head closely punctured, broad median sulcus, short muzzle. Antennomeres 1-4 obconic, 5-11 toothed. Pronotum closely punctured, elongate basal fovea, basal notches represented by glabrous area on each side closer to margin than middle; apical margin concave, basal margin barely bisinuate; laterally angled outwards from base, rounded to widest before middle, tapered to apex; dorsal surface depressed one third distance from base. Scutellum scutiform, excavate, punctured. Elytra punctate-striate, intervals convex, punctured, 9th from suture raised and larger than rest; laterally angled out from base, rounded at humeral callus then parallel-sided, rounded post-medially and narrowed to bispinose apex; large sharp marginal spine, minute sutural spine, margin at first rounded then almost straight between spines, apices diverging, apical margin subserrate. Ventral surface with shallow punctures, edges of abdominal segments glabrous, otherwise moderately setose, setae medium length. S₇ truncate in males, rounded in females. Males: legs 2 and 3 tarsomeres 1-3 lacking pulvilli.

Aedeagus: Short, angled outwards from basal piece, rounded outwards before middle then more or less parallel-sided until rounded at apex. Penis broad with small spine (Fig. 1j).

Remarks

This species is grouped with *Castiarina mustelamajor* (Thomson, 1857) (Fig. 1m), *Castiarina erasma* (Carter, 1935) (Fig. 1k) and *Castiarina gardnerae* (Barker, 1987) (Fig. 1l), the males of which have modified tarsomeres and a similar body shape. *C. markgoldingi* differs from the rest in its colour and shape of male genitalia. All specimens were collected on the flowers of *Dicrastylis* sp.

Etymology

Named after the collector M. Golding, Beverley.

***Castiarina moxoni* sp.nov.**
(Figs 1c, 2f)*Holotype*

♂, 38 km ESE Amata, S.A., 26° 17' 45" S 131° 29' 32" E, 22.x.98, Pitjantjatjara Land Survey YURO7, SAMA I21 566.

Paratype

SA: ♂, same data as holotype, SAMA.

Size: Holotype, 13.6 x 5.3 mm. Males, 13.6 x 5.1 – 5.3 mm. Females, unknown.

Colour: Head, apex royal blue, medially black with blue reflections, basally black with bronze reflections. Antennomeres: 1-2 blue; 3-11 yellow-bronze. Pronotum black with bronze reflections medially, blue reflections laterally. Scutellum black. Elytra red with the following black markings: pre-medial fascia with ends expanded anteriorly and posteriorly but not reaching margin (in holotype fascia is broken leaving two medial spots), post-medial fascia reaching margin and spade-shaped pre-apical mark, all connected along suture, first two narrowly, second two broadly. Ventral surface black with blue and bronze reflections. Legs: femur and proximal dorsal section of tibia royal blue, distal and ventral section of tibia blue, tarsi blue-green. Shape and sculpture: Head punctured, with broad median sulcus from base to middle. Antennomeres: 1-3 obconic; 4-11 triangular. Pronotum punctured, anterior margin straight, basal margin bisinuate, laterally rounded and narrowed from base to apex. Scutellum scutiform, excavate, glabrous. Elytra punctate-striate, angled outwards from base, rounded at humeral callus, slightly concave rounded post-medially and tapered to bispinose apex, marginal and medial spines sharp and about equal length, margin rounded between spines. Ventral surface punctured, with moderate length setae mainly at sides. S₇ truncate in males.

Aedeagus: Short and broad apically. Penis sharp (Fig. 1c).

Remarks

This species could be confused with *Castiarina goudiana* (Barker, 1987) (Fig. 1d). They are a similar colour and the elytral markings are similar. However, *C. moxoni* is a larger species, the aedeagus is broader and the punctation on the head is denser than in the other species.

Etymology

The species is named to honour the late Moxon Simpson, Adelaide.

Castiarina pallida sp.nov.
(Figs 1e, 2g)

Holotype

♂, Kilkivan, Qld, 14.xii.00, D. Kitchin, SAMA I 21 567.

Allotype

♀, same data as holotype, SAMA I 21 568.

Paratypes

Qld: 3 ♂♂ & ♀, same data as holotype, DKQA.

Size: Holotype, 13.0 x 4.6 mm. Males, 12.2 – 13.0 x 4.6 – 4.8 mm. Females, 13.8 – 14.4 x 5.3 – 5.4 mm.

Colour: Head green, with or without bronze reflections. Antennae green with yellow reflections. Pronotum and scutellum green with or without bronze reflections. Elytra with narrow green basal margin, remainder pale yellow with sub-serrate and apical spines black. Ventral surface and legs green with or without bronze reflections. Abdominal segments pale yellow with lateral light brown marks on each segment. Setae colourless.

Shape & sculpture: Head punctured, very broad median sulcus. Antennae, antennomeres: 1-3 obconic; 4-11 triangular. Pronotum punctured except for glabrous basal areas on each side midway between margin and middle, apical margin projecting medially, basal margin bisinuate, lateral margin angled out from base, rounded at humeral callus, more or less parallel-sided until rounded post-medially and narrowed to bispinose apices, both spines very small, margin indented and rounded between, apical margin sub-serrate. Ventral surface heavily punctured, sparse very short setae. S7 rounded in males, truncate in females.

Aedeagus: Short and broad, rounded apically, penis broad with small sharp point (Fig. 1e).

Remarks

C. pallida superficially resembles *Castiarina*

subnotata (Carter, 1933), but can be recognised by not having elytral spots, by the brown spotting on the abdominal segments and by having different male genitalia (Fig. 1f).

Etymology

This species is named for its pale colour: *pallidus* L. ashen.

Astraeus (s.s.) *kitchini* sp. nov.
(Figs 1g, 2a)

Holotype

♂, 30 km S Stanthorpe, Qld, 1.xi.2001, on *Casuarina cunninghamiana*, D. Kitchin, SAMA I 21 571.

Allotype

♀, same data as holotype, SAMA I 21 572.

Paratypes

Qld: 15 ♂♂ & 6 ♀♀, same data as holotype, DKQA, SAMA.

Size: Holotype, 8.4 x 3.2 mm. Males, 8.4 – 9.6 x 3.2 – 3.7 mm. Females, 9.2 – 11.2 x 3.3 – 4.0 mm.

Colour: Head mostly blue-green, basally green with yellow reflections. Antennae, antennomeres: 1 red-brown basally the rest green with yellow reflections; 2-11 blue-green. Pronotum green with yellow reflections. Elytra black, each elytron with seven irregular yellow spots, three along margin, four along suture. Ventral surface and legs blue-green. Setae silver.

Shape & sculpture: Head punctured and wrinkled, short median keel becoming a faint impressed line towards base, heavily setose. Antennomeres: apical segments same length in males; becoming progressively shorter in females. Pronotum heavily punctured, setose, with basal crypt. Elytra costate, intervals flat, punctured and wrinkled, laterally rounded from base, rounded post-medially and tapered to marginal spine, both spines well developed; humeral fold moderately developed, angled (Barker, 1975). Ventral surface: thoracic segments heavily punctured; abdominal segments lightly punctured. Ventral surface and legs setose.

Aedeagus: Unlike all other species in that laterally the parameres are curved from the basal piece to the apex.

Remarks

To my revised key to species of *Astraeus* (s.s.) (Barker, 1989) add new 17 Head and pronotum blue-green..... *kitchini* sp. nov.

Etymology

The species is named after the collector, D. Kitehin, Toowoomba.

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